



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,579	03/29/2004	Kimiyuki Hayasaki	00862.023530.	9512

5514 7590 04/20/2007  
FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER
----------

GOLDBERG, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

2861

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/810,579

Applicant(s)

HAYASAKI, KIMIYUKI

Examiner

Brian Goldberg

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-16, and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16 and 18-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/14/06 has been entered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7, 8, 10-16, 18, 19, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (US 6729708) in view of *In re Harza* and further in view of Ishinaga et al. (US 6290334).

3. Regarding claim 1, Fujii discloses "at least two printing element arrays (611 and 612 of Fig 6), each having a plurality of printing elements disposed in an area between at least two of the ink supply channels, alongside each of the ink supply channels (600 of Fig 6); a drive control circuit (613 and 614 of Fig 6), disposed outside the area, for controlling the driving of the at least two printing element arrays; and a...wiring portion (605 and 606 of Fig 6), disposed in the area, for providing a...signal making each of the

printing elements of the at least two printing element arrays...drivable (col 7 ln 41 – col 8 ln 7).” Thus Fujii meets the claimed invention except “a shared wiring” providing a “shared signal” and “two adjacent ink supply channels of the plurality of ink supply channels.”

4. While the figure does not show more than one ink channel, Fujii discloses using an integrated printhead (col 13 ln 12-14). The ink supply opening 600 of figure 6 constitutes the claimed supply channel and as Fujii alludes to, in having an integrated multi-color printhead, the elements of figure 6 would simply be duplicated. Further, *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960) teaches that it would be obvious to duplicate a part (in this case, the circuit and channel of figure 6) for a multiple effect. One would have been motivated to so modify Fujii for the benefit of enabling multi-color printing. Thus Fujii in view of *In re Harza* meets the claimed invention except “a shared wiring” providing a “shared signal.”

5. Ishinaga et al. teach “a shared wiring portion...for providing a shared signal (see 1, 2M/Y/C of Fig 17 and 20 of Fig 21, and col 12 ln 24-26, where a shared wiring provides a shared or common signal).” It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to include a shared wiring portion for providing a shared signal. One would have been motivated to so modify Fujii in view of *In re Harza* for the benefit of allowing higher speed and higher density printing to be performed, as stated by Ishinaga et al.

Art Unit: 2861

6. Regarding claim 2, Fujii discloses “a first printing element array (611 of Fig 6) and a second printing element array (612 of Fig 6) are disposed along both sides of each of the ink supply channels (600 of Fig 6).”

7. Regarding claim 3, Fujii discloses “a time-divisional drive control circuit (615-620, 623, 624 of Fig 6) that time-divisionally drives the printing elements included in the at least two printing element arrays via the drive control circuit, wherein the shared wiring portion (605, 606 of Fig 6) is a plurality of wires that transmit a control signal for specifying a sequence upon the time divisional driving (col 7 ln 41 – col 8 ln 7 and col 6 ln 32 – col 7 ln 14).”

8. Regarding claim 4, Fujii discloses “a decoder circuit (106 of Fig 3, 615, 616 of Fig 6) that generates a control signal for specifying a sequence upon the time divisional driving (col 6 ln 46-49).”

9. Regarding claim 5, Fujii discloses “the time-divisional drive control circuit is provided on a peripheral portion of the printhead substrate (see the bottom portion of Fig 6).”

10. Regarding claim 7, Fujii discloses “a shift register circuit (101, 104 of Fig 3, 619 and 620 of Fig 6) that inputs a print signal for driving the printing elements (col 6 ln 32-37); and a latch circuit (102, 105 of Fig 3, 617, 618 of Fig 6) that latches the print signal input to the shift register circuit (col 6 ln 37-42).”

11. Regarding claim 8, Fujii discloses “the shift register circuit (619, 620 of Fig 6) and the latch circuit (617, 618 of Fig 6) are provided on a peripheral portion of the printhead substrate (see bottom portion of Fig 6).”

1. Regarding claim 10, Fujii discloses "the shared wiring portion (605, 606 of Fig 6) is a matrix wiring capable of time-divisionally controlling sending an electric current so as to time-divisionally drive the printing elements (see Fig 6 and the wiring of Fig 3 that allows time-divisional driving, col 2 ln 45-46)."
2. Regarding claim 11, Fujii discloses "ink of different colors is supplied to each of the ink supply channels (col 13 ln 10-15)."
3. Regarding claims 12-16, 18, 19, 21, and 22, Fujii discloses a printhead (IJH of Fig 1) containing the substrate disclosed above in claims 1-5, 7, 8, 10, and 11, respectively.
4. Regarding claim 23, Fujii discloses "an ink tank (IT of Fig 1) integrated into the printhead (IJH of Fig 1) for supplying ink to each of the ink supply channels (600 of Fig 6)."
5. Regarding claim 24, Fujii discloses "a printing apparatus (IJRA of Fig 1) for printing by discharging ink onto a printing medium (P of Fig 1) using a printhead (IJH of Fig 1) according to claim 23."
6. Regarding claim 25, Fujii discloses "the apparatus according to claim 24, wherein the printhead (IJH of Fig 1) is exchangeable." While Fujii does not explicitly state that the printhead is exchangeable, it is well known in the art that such a printhead may be replaced.
7. Regarding claim 26, Fujii discloses "a printing apparatus (IJRA of Fig 1) for printing by discharging ink onto a printing medium (P of Fig 1) using a printhead (IJH of Fig 1) according to claim 12."

Art Unit: 2861

8. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii in view of *In re Harza* and Ishinaga et al. and further in view of Fujii (US 6629742).

9. Regarding claims 9 and 20, Fujii in view of *In re Harza* and Ishinaga et al. disclose the claimed invention as set forth above regarding claims 7 and 18, respectively. Thus Fujii in view of *In re Harza* and Ishinaga et al. meet the claimed invention except “the time-divisional drive control circuit, the shift register circuit (619, 620 of Fig 6) and the latch circuit (617, 618 of Fig 6) are provided on both sides in a longitudinal direction of the printhead substrate.”

10. Fujii ('742) teaches “the time-divisional drive control circuit, the shift register circuit and the latch circuit are provided on both sides in a longitudinal direction of the printhead substrate (see upper and lower portions of Figs 4 and 6).” It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to provide the elements on both sides in a longitudinal direction of the printhead substrate. One would have been motivated to so modify Fujii in view of *In re Harza* and Ishinaga et al. for the benefit of decreasing the time required for transferring the data in order to enable faster printing.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

12. An obvious duplication of the Fujii circuit on the substrate most clearly illustrated in figure 6 provides a plurality of ink supply channels with a wiring portion between two adjacent ink supply channels. Furthermore, Ishinaga et al. teach sharing a wiring

Art Unit: 2861


portion that provides a shared signal making each of the printing elements drivable.


Additionally, both of these references discuss achieving the benefit of reducing size and cost.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Goldberg whose telephone number is 571-272-2728. The examiner can normally be reached on Monday through Friday, 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian Goldberg   
AU 2861  
April 13, 2007

  
MATTHEW LUU  
PRIMARY EXAMINER